

# Can Country-of-Origin Labeling Succeed as a Marketing Tool for Produce? Lessons from Three Case Studies

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*This paper draws on the theory of product differentiation in a trade context and uses three case studies to highlight the conditions necessary for a successful geographical-origin branding strategy for farm produce in the United States. In so doing, the U.S. country-of-origin labeling (COOL) scheme as a branding strategy for produce is assessed. The paper argues that the use of geographic identifiers to achieve product differentiation is viable, but any claim that such differentiation will prove useful at the country level for farm produce seems likely to be misplaced. In order to raise prices, a key complement to branding is some restriction on the volume of product going out under the brand name. These restrictions may be accomplished by supply controls, quality controls, or entry barriers, but will not be available to all U.S. products currently hoping to gain from mandatory COOL.*

*Le présent article s'appuie sur la théorie de la différenciation des produits dans un contexte commercial et utilise trois études de cas pour faire ressortir les conditions nécessaires pour réussir une stratégie de la marque distinctive selon l'origine géographique des produits agricoles aux États-Unis. Nous avons examiné le programme états-unien d'étiquetage du pays d'origine (COOL) comme stratégie de la marque distinctive. Le présent article soutient que l'utilisation d'identificateurs géographiques pour différencier les produits est viable, mais toute allégation voulant que ce genre de différenciation se révèle utile à l'échelle nationale pour les produits agricoles semble inappropriée. Pour hausser les prix, il faudrait, en plus d'utiliser la marque distinctive, imposer certaines restrictions quant au volume de produits emballés sous la marque du fabricant. Ces restrictions peuvent être imposées par le contrôle des approvisionnements, le contrôle de la qualité ou la mise en place de barrières à l'entrée, mais elles ne pourront toucher tous les produits états-uniens qui espèrent actuellement tirer un gain du programme COOL obligatoire.*

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## INTRODUCTION

In the 2002 Farm Bill, the U.S. Congress introduced country-of-origin labeling (COOL) requirements on certain meats (beef, lamb, and pork), fish and shellfish, fresh and frozen fruits and vegetables, and peanuts. These products are to be differentiated—or branded—by national origin (i.e., as product of the United States, product of another country, or as a product of mixed origin). This branding information will be communicated to consumers via mandatory labels at the retail level. Supporters of mandatory COOL argue

that the legislation will give domestic producers an advantage, since surveys show that all else equal, American consumers prefer to buy U.S. food products (GAO (General Accounting Office) 1999). U.S. consumers may prefer “made in USA” products because they believe that U.S. farmers or manufacturing processes are superior to other countries’ or they may believe they are supporting U.S. employment. A positive country image can be based on experience, beliefs, or impressions (Kleppe et al 2002). The California Farm Bureau, among other growers’ organizations, has endorsed the COOL regulation, arguing that it is a valuable marketing tool and, in Kleppe’s terminology, can be part of the marketing mix designed to evoke a specific positive image.<sup>1</sup>

In this paper, we identify and discuss the conditions necessary for a price premium to be realized for farm produce (i.e., fruits and vegetables) labeled as “product of the United States.” Product differentiation via branding, which we interpret this labeling to be, is one means by which a firm can “distance” its product from that of competitors and reduce the (absolute value of the) relevant elasticity of demand. This paper seeks to shed light on the question of whether the image or information summarized or signaled by the country-of-origin label can act as a form of branding that would increase consumer willingness to pay for U.S. fruits and vegetables relative to foreign produce.

We begin with a theoretical discussion of COOL, drawing a distinction between voluntary and mandatory labeling. We argue that mandatory COOL is unlikely to be a successful means of increasing profits for domestic producers if the cost of labeling is equal across domestic and foreign producers. This is true even if U.S. consumers prefer to purchase domestic products. As we discuss, voluntary labeling is likely to occur when the revenue generated from labeling exceeds the costs of doing so. Even in a context in which the cost of labeling is negligible, labeling is unlikely to generate profits for producers in monopolistically competitive markets like produce markets. Drawing on the work of Lancaster (1979) and Krugman (1979a, 1979b, 1980) we show that mandatory COOL may increase the markup of price over marginal cost for U.S. producers in a trade context, but will do so only in the short run if entry cannot be prevented or supply otherwise controlled.

We present three case studies of ongoing geography-based branding efforts in the U.S. produce sector as a means of qualitatively assessing the conclusions generated by the theoretical model. We present a case study of Georgia’s Vidalia onions, a product that seems to have been successfully differentiated from generic onions based on a geographically identified designation. Next we consider Florida orange juice and Washington apples, cases in which attempts at differentiation based on region of origin have been less successful.

We use these case studies to highlight the criteria necessary for successful branding based on geographic origin in the U.S. context. These criteria include product differentiability, which would be accomplished by the mandatory COOL legislation. However, this differentiation must be accompanied by, or generate, a downward sloping demand curve. We summarize evidence showing that the own price elasticity of Vidalia onions is inelastic relative to the price elasticity for other onions. In contrast to the Vidalia onion case, Florida orange juice producers face an elastic demand for their product.

We stress that any distinguishing characteristic of a branded product must be maintained and continually communicated to consumers, usually via promotion. The more broadly based a regional branding effort is, the less likely that producers will be willing to pay to support promotional efforts. For instance, promotion of Washington apples

has been unsuccessful because organic and specialty growers in the state have effectively blocked mandatory funding of promotional efforts. On the other hand, Vidalia onion growers, as a narrow class of specialty growers, have successfully collected funds for promotion from within. In the case of COOL, labeling will be more effective if there is complementary promotion.

Finally, we emphasize that producers who can control the supply of a branded product are more likely to be triumphant in maintaining a price premium. In a tightly defined geographic region, producers have a greater chance of collectively restricting production and entry of new firms. These supply restrictions can facilitate product markup. We provide both qualitative and quantitative evidence that Vidalia growers have controlled supply through a variety of means, including quality inspections and prosecution of “re-bagging” fraud, as a means of maintaining a price premium. However, Washington apple growers and Florida orange juice producers have had fewer means of limiting supply or preventing entry and as a result they have been unable to maintain a price premium.

Our three case studies are used to draw inferences regarding the likely success of COOL as a marketing tool. Our findings largely support the conclusions of the U.S. Food Safety and Inspection Service (2000) that there is no evidence that cool will lead to long-term price premia. First of all, differentiation is simply not an option for many goods based on the nature of the products in question. For example, in the orange juice market, U.S. processors blend Brazilian (and some Costa Rican) juice with Florida orange juice, in order to achieve a desired flavor, color, acidity, and viscosity (Hart 2004; Minute Maid 2005). Second, successful differentiation requires a level of control over product supply and market entry that is unlikely to be achieved for a good produced over a large geographic region. Finally, advertising and promotion contributes to the success of any differentiated goods campaign, and many agricultural industries may not be able to generate the necessary funds for promotion given some recent court decisions in the United States.<sup>2</sup>

The remainder of this paper is organized as follows: In section 2 we discuss the COOL legislation and review the theoretical implications of mandatory COOL for the profits of domestic producers. In section 3 we present a case study of Georgia’s Vidalia onions, a product that seems to have successfully differentiated itself from others in its category based on a geographically identified designation. Sections 4 and 5 present case studies of Florida orange juice and Washington apples, markets where geography-based branding has been less successful. Section 6 concludes the paper.

## BACKGROUND AND POLICY CONTEXT

### **Mandatory COOL**

Mandatory COOL requires that retailers inform consumers of the country of origin of covered commodities.<sup>3</sup> The major direct costs of a program like COOL include the costs of segregation along the marketing channel and tracking product origins, the physical cost of labels, and enforcement costs. The U.S. Department of Agriculture’s AMS estimated that domestic producers, food handlers, and retailers would spend \$582 million on COOL recordkeeping in the first year alone if the labeling requirement is enforced for all commodities originally covered in the legislation (AMS/USDA (Agricultural Marketing Service/US Department of Agriculture) 2002). The Food Marketing Institute estimates that compliance by fruit and vegetable suppliers will cost \$1.3 billion annu-

ally (FMI (Food Marketing Institute) 2001). While many fruits and vegetables are already labeled by country of origin, others may face significant costs in order to comply with COOL. For example, under COOL, a mixed bag of salad would likely have to list all countries that contributed to the ingredients. Similarly, a carton of orange juice blended from different countries would have to list each country of origin (AMS/USDA 2002).

### **Product Differentiation via Geographic-Origin Labeling**

For years, many food producers have voluntarily labeled their products for a variety of reasons. For example, producers of organic food products have voluntarily labeled their products to attempt to capture a price premium,<sup>4</sup> as have producers of “dolphin-safe tuna.” Similarly, lamb imports from Australia and New Zealand bear country-of-origin labels, going beyond legal requirements, because they believe that consumers prefer this product to domestic lamb or lamb from the rest of the world (Golan et al 2000). If demand for information exists, the food industry has generally been adept at seizing this market opportunity for branding via origin labeling. Thus, Australian and New Zealand suppliers have an incentive to label their lamb products because they capture a positive net benefit from doing so, while producers and retailers who abstain from the practice anticipate that revenue will not increase enough to offset labeling and segregation costs. Some U.S. producers also label their products by region of origin, including Kona coffee, Idaho potatoes, Napa Valley wine, and the growers of the products that are the focus of the case studies in this paper: Vidalia onions, Washington State apples, and Florida orange juice. Again, these labels are presumably meant to signal quality and potentially capitalize on a form of consumer regional loyalty (Sappington and Wernerfelt 1985; Patterson et al 1999).

The fact that U.S. producers have not found it profitable to voluntarily provide COOL to customers for fresh produce, meats, and fish is strong evidence that willingness to pay for this information does not outweigh the cost of providing it.<sup>5</sup> In other words, if the benefits outweighed the costs, profit-maximizing firms would have already exploited this opportunity.<sup>6</sup>

Suppose the cost of providing country-of-origin information is low or negligible, as it may be in the case of fruits and vegetables. In addition, assume that the COOL legislation results in higher prices for U.S. products. Even in this favorable situation for growers, we show that any unexploited willingness to pay for U.S.-grown products may be insufficient to generate increased profits for domestic producers via COOL. This is likely to be the case if produce markets are monopolistically competitive and the marketing of differentiated products involves economies of scale (Chamberlin 1956; Lancaster 1979; Krugman 1979a; Helpman and Krugman 1985; Helpman 1990). There is strong evidence of intraindustry trade in agriculture (Department of Commerce, U.S. Census Bureau, Foreign Trade Statistics), which supports our premise that produce markets are monopolistically competitive.

To summarize the model that we present, in a context of monopolistic competition in differentiated products and increasing returns to scale in production and/or marketing, the effect of mandatory COOL on domestic producers’ market share and price depends on whether the consumer thinks the additional information moves the domestic product closer toward being the consumer’s ideal good. If this is the case, domestic producers may

realize an increase in market power as a result of COOL. However, the increase in market power can only be exploited if the domestic industry can restrict entry or otherwise control supply.<sup>7</sup> This is a theme that we will revisit in the case studies we present below; price premia for fruits and vegetables depend critically on the ability of producers to control supply or restrict entry.

Suppose that demand for a product is such that each consumer has a preferred product specification (as defined by a bundle of attributes or characteristics) and consumes the product that comes closest to her ideal (Lancaster 1979, 1980; Vousden 1990).<sup>8</sup> That is, demand for a home good with price  $p$  is given by

$$D(p, p'; \delta) \quad (1)$$

where  $p'$  represents the price of the adjacent goods on the product spectrum, and  $\delta$  is a parameter that measures the distance of the home good from the consumer's most preferred specification. In the context of COOL, the adjacent goods would include imported goods. The function  $D(\cdot)$  is a decreasing function of own price  $p$ , and an increasing function of  $p'$ . The distance parameter  $\delta$  determines the elasticity of  $D(\cdot)$  such that an increase in  $\delta$  (i.e., the home good is located further from its closest substitutes) decreases the elasticity of  $D(\cdot)$ . Thus, the market power enjoyed by a producer of a particular good depends on the distance of that good from adjacent goods. The demand-side effect of COOL specifically depends upon whether the additional origin information moves a particular product closer to a consumer's most preferred good and at the same time further from its closest substitute goods.

Consider a world market in which there are only two firms, one domestic and one foreign. Each producer supplies a differentiated product in the same industry and sells all their product in the U.S. market according to their individual downward-sloping demand curves<sup>9</sup>  $D^U(p^U, p^F; \delta^U)$  and  $D^F(p^F, p^U; \delta^F)$  where  $p^U$  and  $p^F$  are prices charged by each producer, and  $\delta^U$  and  $\delta^F$  represent the distance of each producer's product from the representative consumer's most preferred specification. For simplicity, we assume that  $D^U(\cdot)$  and  $D^F(\cdot)$  coincide prior to COOL. In terms of costs, both producers have identical cost schedules characterized by increasing returns to scale.

The pre-COOL monopolistically competitive equilibrium in this model occurs where price equals average costs for both producers (the zero profit condition) and marginal revenue equals marginal cost (profit-maximization). Total industry supply equals total industry demand, so total industry output,  $Q = q^U + q^F$  clears the market at the prevailing prices  $p^U$  and  $p^F$ .

As a result of mandatory COOL, products become differentiated according to country-of-origin but the cost curves are not materially affected at the producer level. The marketing costs might be affected because of labeling and segregation requirements, but we are interested in the direct producer impact. As a result of COOL, the distance between each product has widened. If consumers possess a higher willingness to pay for U.S. goods, it must be the case that the U.S. goods have moved closer to the consumer's most preferred good within the product spectrum and that the foreign goods have moved further from the domestic good.

Figure 1 demonstrates this increase in distance of domestic and foreign goods. The product specification is represented along the horizontal line.  $V^*$  represents the ideal variety for a large number of domestic consumers. One characteristic of  $V^*$  is that it

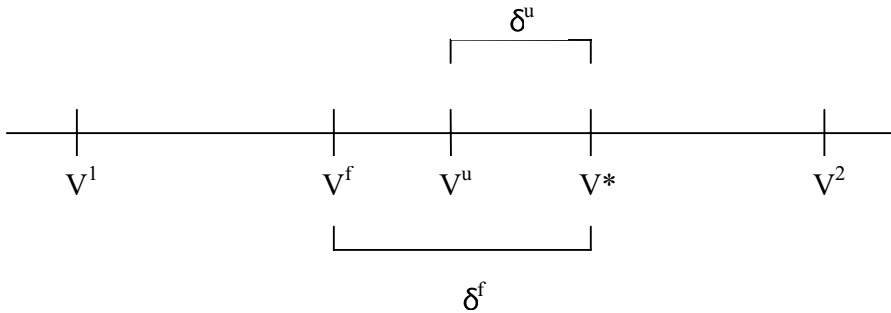


Figure 1. Distance of products from the ideal following COOL

is domestically produced. Prior to COOL domestic consumers cannot purchase their ideal good (no label informs them of the origin characteristic) so they choose between  $V^u$  (domestic good) and  $V^f$  (foreign good) or substitute goods such as  $V^1$  and  $V^2$ . The introduction to COOL reveals the country of origin for the domestic and foreign goods and moves  $V^u$  toward  $V^*$  and reduces  $\delta^u$ . As a result,  $V^u$  and  $V^f$  are further apart so they become poorer substitutes for each other. In addition, the own price and cross price elasticities of demand for the domestic good decrease. Thus, COOL may temporarily raise the market power of the domestic industry.<sup>10</sup> However, since both producers are operating in a monopolistically competitive industry, the new post-COOL equilibrium will occur where each producer's new demand curve is tangent to their average unit cost curve if entry occurs and supply cannot be otherwise controlled.

Supply constraints may be used to make permanent any temporary gains experienced by domestic producers as a result of COOL. We illustrate this notion with Figure 2 where  $D$  is the demand curve facing the domestic industry before COOL and  $AC$  is the industry's average cost curve. The initial equilibrium is at point  $E_0$ . The impact of COOL is to rotate the demand curve for the domestic good from  $D_u$  to  $D_u^c$ . If output remains at  $q_0$  then the industry earns positive profits with the new demand curve  $D_u^c$  and price level  $p_{sc}$ . However, this situation attracts entry into the domestic industry until profits are driven back down to zero as shown by the equilibrium point  $E_1$  where  $AC = D_u^c$ . If the industry was able to somehow restrict entry and keep output at level  $q_0$ , then excess profits equal to  $Op_{sc} - Op_0$  per unit could be earned.

In summary, under monopolistic competition conditions, origin labeling may raise profits in the short run if labels distinguish attributes that consumers care about or if the labels connote quality. Permanent gains may require restrictions on entry and/or supply controls. The lessons from the case studies of origin-based labeling below broadly support these conclusions.

### CASE STUDY 1: VIDALIA ONIONS

The existence of a price premium for Vidalia onions has been documented (Centner and Bryan 1988b; Centner et al 1989b; Clemens 2002), which suggests that Vidalia onion growers have been extremely successful in defending their brand, even as acreage has risen. Table 1 shows grower prices of spring onions in Georgia (the vast majority is Vidalia)

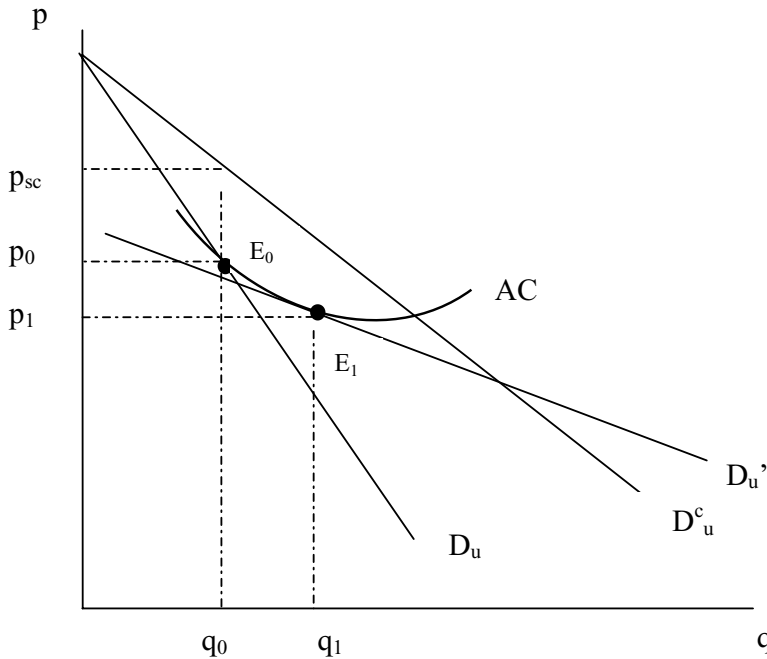


Figure 2. Use of supply control with COOL

compared to spring onions grown in California, Arizona, and Texas over the last 15 years. Spring onions are higher priced and highly perishable because of thin skins. Spring onions must be handled more carefully than onions that can be placed in storage. Georgia onion prices are on average over 100% higher than California prices, 200% higher than Arizona prices, and over 50% higher than Texas prices. Costa et al (2002) estimate that the own price elasticity of Vidalia onions is quite inelastic, as they find that a 1% increase in price yields only a 0.14% reduction in quantity purchased.

From 1992 to 2000, Vidalia onions consistently sold at a higher retail price compared to onions from other states, with the price premiums ranging from \$1 per 50 lb. bag (8% higher than the second highest state) to over \$10 per bag (more than four times the price of onions produced in two other states) (Boyhan and Torrance 2001). Given the relatively low own price elasticity reported above, these price premiums could be easily eroded if the total supply of Vidalias were to move toward a more competitive level—that is, where price equals the minimum of average total cost. Instead Vidalia onions have been able to maintain their price premiums through a combination of supply-side regulations including quality controls and prosecution of fraudulent claims of Vidalia regional origin.

### Differentiation via Geographic Branding and Promotion

Vidalia onions are grown in select counties in the state of Georgia and they have historically been differentiated from competing onions on the basis of taste (Cox 2005).

Table 1. Prices of spring onions by state 1990–2005

Season average price in dollars per hundredweight of spring onions					
Year	Georgia	California	Arizona	Texas	United States (weighted average)
1990	32.40	11.10	10.50	17.00	16.00
1991	31.50	18.00	8.61	19.10	19.10
1992	25.40	11.80	9.82	19.80	16.70
1993	29.70	18.00	16.40	26.20	22.40
1994	20.70	8.00	7.70	10.70	11.30
1995	28.10	14.00	7.90	19.20	18.60
1996	30.50	9.80	8.60	9.70	13.20
1997	25.60	14.30	12.60	16.90	18.40
1998	30.90	14.10	15.30	21.70	20.00
1999	27.10	11.90	11.40	17.40	17.30
2000	26.00	10.60	5.80	17.20	16.60
2001	27.50	13.50	8.00	18.50	18.30
2002	32.20	14.20	8.35	21.40	20.00
2003	34.30	22.90	9.89	38.10	29.70
2004	23.50	15.10	8.80	22.60	19.70
2005	29.70	12.00	10.20	29.70	22.60

Source: NASS/USDA (National Agricultural Statistical Service/US Department of Agriculture) (2005a).

The passage in 1986 of the Vidalia Onion Act in the Georgia state legislature delimited very specifically a qualified production area for onions that could be marketed as Vidalia onions. In 1989, Federal Marketing Order #955 was granted, overseeing production, labeling, and promotion of Vidalia onions, and it is supported through a small fee levied on each sack of onions sold. Establishment of the marketing order immediately lowered the annual price variance of Vidalias (Centner et al 1989a; AMS/USDA 2005).

Legal mechanisms to impose quality controls and defend the Vidalia brand were granted to Vidalia onion growers following incidences of “rebagging” fraud and subsequent declining prices. The Vidalia Onion Act requires growers to register with a central authority, allows the Georgia commissioner of agriculture to set standards, mandates inspections, and sets criminal penalties for the violation of identification and sales restrictions (Centner and Bryan 1988a). Each of these instruments makes quality control more feasible.

Prosecution of rebagging is ongoing and continuing efforts to rebag is evidence that there is a positive gap between the price and marginal production cost of Vidalias. If left unchecked, the rebagging growers would close this gap, driving down price until the premium was completely eroded. From 2001 to 2003, the Georgia Department of Agriculture (GDA 2003) lists six fines assessed via arbitration, ranging from \$5,000 to \$29,000, for misusing the Vidalia label in Georgia or South Carolina. In 2001, Fresh Del Monte Produce (not related to Del Monte Foods) was fined \$100,000 for mislabeling about 2,000 five pound bags of onions as Vidalias (Paul 2001).



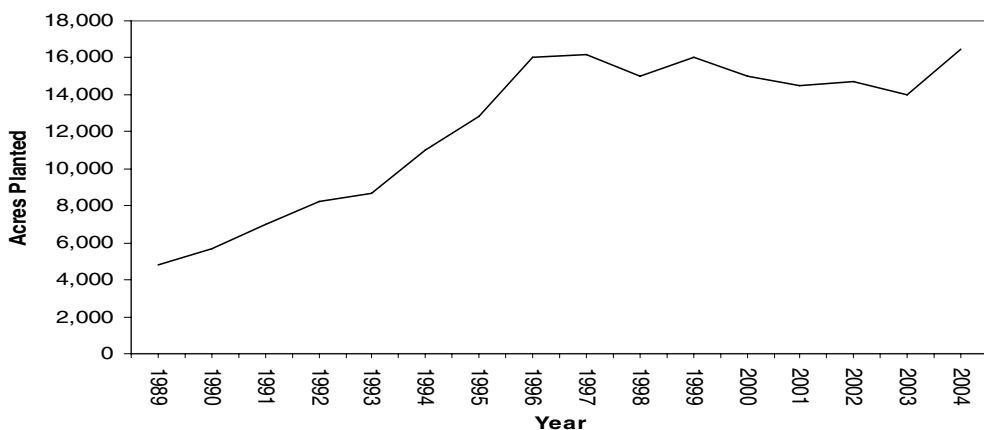
### Opportunities to Control Supply and Restrict Entry

Vidalia onion growers have developed an institution that may reduce the costs of coordinating planting decisions in order to maintain a price premium as part of the Marketing Order for their crop. The Vidalia Onion Committee has the authority to restrict supplies through both direct and indirect means. The Committee has the authority to coordinate planting decisions, including acreage reductions. Indirect evidence of successful coordination comes from NASS/USDA (National Agricultural Statistical Service/US Department of Agriculture) (2004) data on prices and harvested area for Georgia spring onions, the vast majority of which are Vidalias. From 1989 to 1996, the number of spring onions planted in Georgia increased well over three times with an average annual increase of about 30%; however, from 1996 to 2004 there was little change in acres planted (see Figure 3). A promising avenue for future research would be to measure the value of Vidalia's brand resulting from supply control marketing strategies. However, such an exercise is beyond the scope of this paper.

### Summary

Vidalia onion growers have a differentiated product which they have been able to distance from its substitutes by creating and promoting the "Vidalia onions" label. They have been able to maintain this distance through supply controls. Specifically, they have delineated the growing region, identified the growers permitted to produce the labeled product, established a legal basis for prosecution of any mislabeling, enforced those laws, and ultimately implemented planting controls to limit the volume of onions put on the market at any given time.

The Vidalia onion success story is not unique. Other products have gone through a similar process, creating an identifiable product from a geographically limited area that is sold at a price premium under conditions of controlled supply. Another notable example is the Texas grapefruit industry: Texas Ruby Red grapefruit was the first grapefruit to



Source: NASS/USDA (2004)

Figure 3. Georgia spring onions: Acres planted from 1989 to 2004

receive a U.S. patent, and these grapefruit appear to be selling at a premium over other grapefruit (Major 2004), at least partly because supply is restricted by those licensing the patented product. However, as our next case study illustrates, not all products that are geographically specialized can achieve and maintain a successful brand.

## CASE STUDY 2: WASHINGTON APPLES

The Washington fresh apple industry was created in the mid 1870s. Climate and soil conditions are ideal for apple cultivation in Washington, and irrigation has allowed the industry to expand over time. There is no single cultivar that is particularly suited to the region. Red Delicious fruit accounts for a large share of current production because of the historic popularity of this variety, but new varieties have markedly increased their share of Washington State apple production in the last decade. Although many states in the United States grow apples, the state of Washington has produced more than one-half of the country's apples for many years. Today, the annual value of Washington apple production is an estimated \$1.8 billion, or about 61% of the U.S. aggregate (NASS/USDA 2005a).

### **Differentiation via Geographic Branding and Promotion**

Like Vidalia onion growers, Washington apple producers have historically used promotional activities to inform consumers of the distinguishing characteristics of their product. The Washington Apple Commission (WAC) has invested hundreds of millions of dollars over the past decades into research and marketing, in an attempt to preserve the state's reputation for quality apples. By promoting and preserving the state's reputation for quality, Washington apple producers are trying to distance themselves from their competitors. Unlike Vidalia onion growers, however, Washington apple growers have not been able to maintain coordination over funding for these activities. Notably, organic apple growers and specialty cultivar growers have successfully sued to allow them to opt out of generic advertising efforts, severely restricting the activities of the WAC. These growers contend that the Washington apple label is too broad for their own branding purposes. Instead, they hope to capture price premiums above and beyond that afforded by the regional brand (Kerschner 2003).<sup>11</sup> The growers of particular apple cultivars bear greater resemblance to the Vidalia onion growers as specialty producers, than do the state's apple growers as a group.

Econometric evidence shows the existence of positive reputation effects on the price of Washington apples, but the effectiveness is declining over time. Using a structural latent model, Quagraine et al (2003) found significant reputation effects with a significant and negative constant term describing the reputation trend.<sup>12</sup> Using retail price data spanning September 1990 through August 2000, van Voorthuizen et al (2003) estimate the own price elasticity of demand for Washington apples to be  $-0.113$ , indicating that suppliers of Washington apples face an inelastic demand curve. The implication of a significant reputation effect coupled with an inelastic demand curve is that growers of Washington apples have successfully distanced their product from other apple substitutes and therefore receive a price premium for their product relative to other apple growers. However, the magnitude of this premium is unstable with regard to quantity supplied; that is, due to the inelasticity of demand, small increases in supply will induce relatively large decreases in price, thus eroding any price premium. A comparison of Washington State

and California Red Delicious apples of comparable size and grade for the most recent marketing year reveal little or no price differential.

### **Opportunities to Control Supply and Restrict Entry**

Washington apple growers are not in a position to follow the Vidalia strategy of limiting supply or restricting entry and therefore are unable to maintain price premiums. The absence of a mechanism available to apple growers to implement supply restrictions is in part due to technical reasons and in part due to coordination/cooperation issues. Tree crops producers are slower in responding to market signals than producers of annual crops like Vidalia onions. For tree crops, the ratio of fixed costs to variable costs is higher, creating an incentive to produce at a higher level once fixed costs are paid. Thus, attempts by the state or WAC to reduce supply would require shifting production out of oversupplied varieties, such as Red Delicious, at a lag, or increasing production of organic apples.<sup>13</sup> Aside from these technical concerns, it is important to note that unlike the Vidalia growers, Washington apple growers do not coordinate on acreage restrictions or supply constraints via quality standards. As the controversy over advertising expenditures illustrates, these growers are too diverse to have either the means or inclination to control supply. Bearing apple acreage in Washington has increased from about 172,000 acres in 1993 to over 200,000 acres today (NASS/USDA 2005a).

### **Summary**

Though Washington apple producers have been able to distance their product from its substitutes through promotion, they have been unable to maintain this distance. Due to the great number of apple varieties, it has been difficult for Washington apples to move as a group further away from substitutes and toward consumers' "ideal variety" of apple. Furthermore, the lack of supply controls has also diminished Washington apple producers' attempts to maintain their distance and price premiums.

## **CASE STUDY 3: FLORIDA ORANGE JUICE**

The Florida orange juice industry has grown from humble beginnings when a few trees were brought to North America hundreds of years ago, into a \$9 billion industry (NASS/USDA 2005b). Florida oranges were first sold commercially in the late 1890s. Since then the acreage has expanded as the state's landscape developed (Hart 2004). A key event was the appearance in the mid 1940s of the technology to concentrate juice into a frozen product. More recently, there has been a major shift in consumer demand away from frozen concentrate orange juice (FCOJ) toward not from concentrate (NFC) juice. NFC juice is made almost exclusively with domestically grown oranges, while FCOJ is produced with a blend of concentrates from domestic and foreign sources.

### **Differentiation via Geographic Branding and Promotion**

Within the FCOJ category, differentiation opportunities are extremely limited. Processors mix crops to engineer a quality product, seeking to achieve a desired flavor, color, acidity, and viscosity (Hart 2004). Thus, processors that limit the source of oranges they have access to may end up with a lower quality product. As a result, processors encourage

consumers to regard foreign and domestic products as equivalent.<sup>14</sup> This seriously limits the ability of domestic FCOJ to distance itself from foreign FCOJ.

The promotion of orange juice has been shown to effectively increase overall demand (Lee and Brown 1992; see also Gao and Lee 1995). In the NFC subcategory, these gains should accrue almost exclusively to Florida growers. Consistent with the finding, Florida growers have until recently been able to maintain a coordinated advertising effort. Unlike the Washington apple promotional efforts that led to disagreements among producers of different apple cultivars, promotional activities by the Florida Department of Citrus have touted the health benefits of orange juice in general, avoiding any conflict among growers (Campbell 2001).

Despite this apparently successful coordination, in late 2004 the Second District Court of Appeals dealt industry advertisers a blow when they found that the “box tax” on domestic producers that funded promotional activities to be unconstitutional. Although an appeal is in process, promotional activities by the Florida Department of Citrus look to be severely curtailed in the future (Jones 2004) just as in the Washington apples’ case.<sup>15</sup> This curtailment would harm Florida orange juice producers’ ability to distance their product from other substitutes.

### **Opportunities to Control Supply and Restrict Entry**

Florida orange juice growers have a virtual monopoly over the NFC market, giving them the potential for earning a markup in that market because in theory supply could be effectively controlled. However, competition among juice brands and from other competing beverages has likely limited the opportunities for the industry as a whole to capture a premium (Cosgove 2004).<sup>16</sup> The continuing potential for consumers to shop across subcategories and switch to FCOJ may also hold prices down (Wedel and Zhang 2004). These possibilities may be expected to act in a manner analogous to free entry into the market in terms of their effects on orange juice prices.

## **CONCLUSION**

In this paper we use three case studies to highlight the conditions necessary for a profitable branding strategy via origin labeling for farm produce in the U.S. context. Lessons drawn from these case studies allow us to draw inferences about why COOL and other broad forms of geographic origin labeling are unlikely to be an effective marketing strategy for produce. We focus on three criteria that shed some light on whether COOL can successfully generate a price premium: product differentiation accompanied by a downward sloping demand curve, promotion, and supply control.

Consumers may be willing to pay a premium price for domestic produce if they perceive it to be of higher quality (Brooker et al 1999), but taking advantage of that opportunity requires meeting a number of conditions that are not feasible for many products at even the regional level of geographic branding, let alone the national level as proposed by COOL. First, for differentiation to be meaningful, the demand curve must slope downward. The price elasticity of farm produce varies across products, but for many nonspecialty products competition occurs largely on the basis of price, and retail demand is highly elastic. In our case studies, both Vidalia onions and Washington State apples appear to face downward sloping demand curves. Demand for Florida orange juice (especially FCOJ), on the other hand, appears to be elastic.

Demand for any broadly based U.S. labeled nonspecialty food product is most likely highly elastic. This would likely hold as well for a broad-based foreign country nonspecialty product supplier, for example, bananas from Ecuador. In contrast, a foreign supplier selling a product with limited supply may be able to distance its product and signal quality to U.S. consumers, for example, French wine.

Second, any distinguishing characteristics of the product must be maintained and made clear to consumers, usually via promotion. Legal rulings in the past few years make it more difficult to raise funds for effective promotion for a regional agricultural good. In terms of a national good where there are few alternative foreign products, there is little gain associated with attempts to signal a distinct quality and promote, other than the generic “buy USA” cue.

Third, producers who can control the supply of a branded product and/or restrict entry into their market are more likely to be successful in achieving a price premium. Among the products that we discuss, Vidalia growers have the most powerful tools at their disposal for controlling supply. For COOL to restrict supply of a given product, the legislation must limit the supply of foreign-grown products by acting as a nontariff barrier to trade (Carter and Zwane 2003). The U.S. supply of the product also must be limited in order to establish a niche and generate a price premium.

In summary, while we have relied on a theoretical model and a limited number of case studies to reach this conclusion, we find that the use of geographic identifiers to achieve differentiation is viable, and those producing differentiated goods should take advantage of the opportunity, but any hope that such differentiation will prove useful at the country level for farm produce seems likely to be misplaced. In a context of monopolistic competition, entry restrictions and/or an ability to limit supply is an important and necessary complement to any branding strategy based on geographic origin.

## NOTES

<sup>1</sup>Originally scheduled to take effect September 2004, U.S. Congress agreed to delay COOL until September 2008 to revisit some of the legislative requirements. The two-year delay does not apply to fish and seafood, and at the retail level these food products are now labeled according to country-of-origin.

<sup>2</sup>In the United States, a large number of mandatory checkoffs exist for farm commodities in order to support generic advertising. See Kaiser et al (2005) for a discussion and analysis of some of these programs. A number of U.S. farm groups have recently taken legal action to end mandatory commodity (e.g., dairy, pork, and beef) checkoffs and these groups claim that mandatory checkoffs violate the farmers’ right to free speech. This remains an active area of policy debate.

<sup>3</sup>In law that predated COOL—the Tariff Act of 1930 as amended, the Federal Meat Inspection Act as amended, and other related legislation—importers of certain foods were required to inform the “ultimate purchaser” of the country-of-origin. In these cases, the “ultimate purchaser” was defined as the individual purchasing the item in its imported form (ERS/USDA (Economic Research Service/US Department of Agriculture) 2001). Normally, the ultimate purchaser was an intermediary, such as a processor, and so the final consumer was not informed of the country-of-origin. The retail product contained a country-of-origin label only if the good in question was imported in consumer-ready packaging.

<sup>4</sup>At this point in time, we do not have complete information as to how often USDA’s certification and label are used on organic food products. However, evidence from trade publications suggests that there is widespread use of the USDA organic standard and label.

<sup>5</sup>There is little evidence that imperfections in the food market prevent producers from providing COOL. Asymmetric information, where one party in a potential transaction has better information than the other, can indeed lead to inefficient outcomes if high search costs causes consumers to pay more for certain goods (Salop and Stiglitz 1977). In standard economic theory this result arises either because a seller would like to signal that his product is of high quality but is unable to do so convincingly, or because a seller that has a low-quality product can pretend that it is high quality (Akerlof 1970). However, this situation does not apply in the case of COOL in agriculture as there is nothing now that inhibits producers or retailers from “signaling” the national origin of their products (Krissoff et al 2004), particularly in the fresh produce sector.

<sup>6</sup>There are other noneconomic arguments that are used to support mandatory COOL that relate primarily to food safety. It is possible that COOL would make tracing disease outbreaks easier, thus reducing the health costs of food-related diseases. This is less likely than might initially seem to be the case, because of the long delay between disease outbreaks and the shipment of contaminated products (GAO 1999). If domestic products are systematically safer than foreign products, substitution toward domestic goods could also increase the average safety level of food consumed. However, there is little evidence that foreign food products are systematically less safe than domestic products. Furthermore, existing inspection rules ensure that foreign and domestic meats meet the same standards. Foreign fruits and vegetables do not systematically carry more pesticide residue than their domestic counterparts. There is insufficient evidence to determine if bacteria levels differ between foreign and domestic produce (GAO 1999).

<sup>7</sup>We thank an anonymous reviewer for pointing out that the markup that may be earned as a result of such supply controls or entry restrictions may come at the expense of economies of scale. The model we present below neglects this possibility.

<sup>8</sup>An alternative characterization of demand in the context of differentiated products is one in which consumers derive utility from consuming a number of different types of a given product (Spence 1976; Dixit and Stiglitz 1977). For a given level of income, a representative consumer is increasingly better off as the number of varieties increases because she prefers consuming smaller amounts of a larger number of goods. However, we believe that mandatory COOL for produce is best modeled using the Lancaster approach rather than the “love of variety” characterization of preferences. Using the Lancaster approach, not all goods are assumed to be equally good substitutes for one another. Other things being equal, varieties that are further apart on the product line are poorer substitutes. This is a desirable demand-side property because fresh produce consumers may purchase the highest quality product (perhaps determined in part by country-of-origin rankings) that their budget/income constraint allows them to, rather than selecting multiple varieties of the same good.

<sup>9</sup>Superscripts are used to distinguish between the two producers: the superscript U refers to the U.S. producer and F refers to the foreign producer.

<sup>10</sup>Other forms of promotion would act identically in this model to the extent that they highlight attributes valued by consumers.

<sup>11</sup>Estimates of the effectiveness of WAC advertising are varied but some contend that returns to advertising investments are considerable (Richards 1999, 2003; van Voorthuizen et al 2003; Wilhelm 2003).

<sup>12</sup>An earlier study also using a structural latent model found no effects of the Washington apples logo on sales (Patterson and Richards 2000), but found effects when using another estimation method. Quagraine et al (2003) reconcile the results by contending that reputation effects are real but that Patterson and Richards’ structural latent model missed them by looking only at static effects on raw prices rather than measuring dynamic effects on price premiums.

<sup>13</sup>There is in fact some evidence of this trend, with the market share of other cultivars, such as Cameo and Pink Lady increasing. Further differentiation may be possible with new cultivars, some of which likely will be licensed in the future (Day 2000).

<sup>14</sup>Leading brand name Minute Maid's web page says, "Brazilian orange juice is equal in quality to Florida orange juice" (Minute Maid 2005).

<sup>15</sup>Promotion activities were also historically funded through an "import advertising equalization tax" imposed on orange juice imported directly into the state of Florida. Although imports could avoid the tax by shipping directly to destinations other than Florida, a large share of imports come in through Florida because that is where the storage facilities are (Fairchild et al 1987). However, Brazil challenged the legality of the import tax through the WTO and in 2004 achieved a settlement greatly reducing the tax and ensuring that Florida use funds derived from the tax not for promotion but strictly for research purposes (Benson 2004).

<sup>16</sup>Yet another illustration of the limited opportunity for differentiation in orange juice is the fate of the Citrus Hill brand, introduced in the early 1980s. Proctor and Gamble, seeing that just two brands dominated the orange juice market and confident that customers would notice that its own technology preserved more flavor, decided to begin selling juice under this brand name. Unfortunately, "orange drinkers did not notice much difference," and the brand failed (Economist 1988).

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